



This Certificate is issued to  
**Hydroball Technics (SEA) Pte Ltd**

Joo Chiat Complex, Blk 1 Joo Chiat Rd, #04-1019 Singapore 420001

For

Product : Auto Tube Cleaning System  
Brand : HYDROBALL  
Model : HYDROBALL  
Rating : ✓✓✓✓ (Leader)

The product has been assessed according to the assessment criteria of Singapore Green Building Product Certification Scheme.

A stylized black ink signature of the Director of SGBC Pte Ltd, written over a horizontal line.

Director  
SGBC Pte Ltd

Certificate No.  
SGBP 2011-002

Original Issue Date  
23<sup>rd</sup> March 2011

Last Revision Date  
-

Valid Till  
31<sup>st</sup> March 2013

✓ Certified, ✓✓ Good, ✓✓✓ Excellent, ✓✓✓✓ Leader

The use of and reliance on this certificate is subject to the terms and conditions of the Singapore Green Building Product Certification Scheme, which may be found at the Singapore Green Building Council website (<http://www.sgbc.sg>). Revised certificates may also be issued from time to time with changes to certification status. The current certification status of this product may be verified at the web site stated above.



**HydroBall**

Your Partner In Energy Conservation

Hydroball Technics (SEA) Pte Ltd  
Company Registration No. 200300791RBlk 1 Joo Chiat Complex,  
#04-1019 Joo Chiat Rd,  
Singapore 420001  
Tel: (65) 6338 8033  
Email: [sales@hbt.com.sg](mailto:sales@hbt.com.sg)  
Website: [www.hbt.com.sg](http://www.hbt.com.sg)BCA - GREENMARK  
[www.bca.gov.sg](http://www.bca.gov.sg)Prime Minister's Office  
INNOVATION AWARD 2004  
[www.bca.gov.sg](http://www.bca.gov.sg)

Int'l Patent : PCT/SG 03/00065



## HydroBall System Complies to Singapore Standard SS553

**Singapore Standard SS553: Code of Practice for Air-conditioning and mechanical ventilation in buildings**

Source: [www.spring.gov.sg](http://www.spring.gov.sg)

Under Section 20.2.4.2 Chiller Condenser

"For ease of maintenance, automatic tube cleaning system may be used to keep the condenser tubes from scaling and fouling. A typical System should have the following performance functions. Reference can be made in Annex C."

SS553 Annex C: Specifications of Automatic Tube Cleaning System	Product Specifications of HydroBall Automatic Tube Cleaning System
	
<b><u>Selection</u></b>  During the selection of an appropriate system, there should be consideration about wear and tear posed by the components with moving parts such as pumps, diverters and compressors.	HydroBall System does not require any pumps, compressors or flow-diverters to function. The system operates solely based on the difference in water pressure to circulate the balls.
<b><u>Minimal head loss</u></b>  There should be negligible head loss to cooling water system to prevent incur extra load on the cooling water pump.	The HydroBall System does not have components or accessories inserted along the condenser cooling water pipes tubes that will increase overall head loss.
<b><u>No mixture of water</u></b>  The system should not allow warm water leaving the condenser to re-enter the condenser inlet pipe without going through the cooling tower as this will increase the temperature of the cooling water entering the condenser.	The HydroBall System does not allow warm water from the Condenser Return Pipe to re-circulate through the condenser so as not to increase the temperature of the cooling water and reduce the rate of heat exchange.
<b><u>Durable and corrosion resistant</u></b>  The system should be made of material(s) that can withstand corrosion	The Ball Catch shall be made of stainless steel T304 which is resistant to scaling and able to withstand long term corrosion.
<b><u>Easy replacement of consumables</u></b>  The procedure to replace the cleaning medium passing through the condenser tubes should be simple and fast.	Sponge balls can be replaced at the ball station with no downtime to chiller simply by loosening the bolts and lifting up the transparent cover.
<b><u>Little or no water wastage</u></b>  The system shall not result in loss of chemically treated cooling water during its normal operations.	The HydroBall System does not cause chemically treated cooling water to be discharged during each cleaning cycle.
<b><u>Able to withstand high pressure</u></b>  The system shall be suitable for the operating pressure of the cooling water system.	The HydroBall System is able to withstand the operating pressure of the cooling water system.



Certification International

# Certificate of Registration

*This is to certify that*

**Hydroball Technics (SEA) Pte Ltd**

At the sites listed on the attached Appendix

*operates an environmental management system which has been assessed  
as conforming to*

**ISO 14001:2004**

*for the scope of activities*

**Manufacture, installation and distribution of Auto Tube  
Cleaning System for heat exchangers and condenser.**

Certificate No: **CIS/8876E** Issue date: **16 March 2011**

Valid until **15 March 2014** subject to adherence to the agreed ongoing audit programme,  
successful endorsement of certification following each audit and compliance with CI Regulations

Signed for and on behalf of

*Awecheng*  
Authorised Signatory



CERTIFICATION INTERNATIONAL (S) PTE LTD  
7500A Beach Road #16-317 The Plaza Singapore 199591

Reg. No: 199409508E





# INNOVATOR AWARD

*Presented to*

**HydroBall Technics (SEA) Pte Ltd**

**Automatic Cleaning System for Shell  
and Tubes Condensers and Heat Exchangers**

*13 October 2004*

*Mr Teo Ming Kian*

*Co-Chairman, The Enterprise Challenge  
Chairman, Economic Development Board*

*Mr Bilahari Kausikan*

*Co-Chairman, The Enterprise Challenge  
2 Permanent Secretary, Ministry of  
Foreign Affairs*

FPM/ESD/ACMV/239

18 May 2007

Mr Peter Soh  
Managing Director  
HydroBall Technics SEA Pte Ltd  
66 Raffles City  
Singapore 911703

Dear Mr Soh

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**LETTER OF APPRECIATION**

The HydroBall System has been in operation at several chillers in NTU for the past two years. We noted the uniqueness of your System which operates without a pump and there is no discharge of water to circulate the cleaning sponge balls through the chiller condenser tubes for the purpose of rinsing motion within the ball receptacle to remove dirt particles from the sponge balls after each cleaning cycle.

We appreciate the impeccable services and assurance provided by your company for the HydroBall system to operate and function in the most satisfactory manner for energy conservation.

We look forward to continual good service from your company in terms of maintenance as well as future projects with us. With your superior technology and environmental friendly products, we believe HydroBall System will be able to excel in your future endeavors. We wish you success in promoting the use of the unique HydroBall System to improve chiller performance and resources efficiency.

Yours sincerely



Phua Kia Juan  
Senior Assistant Director  
Office of Facilities Planning & Management  
Nanyang Technological University

PKJ/CEH/ceh

**THE REGISTRY OF PATENTS  
SINGAPORE**

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**THE PATENTS ACT  
(CHAPTER 221)**

**CERTIFICATE OF GRANT OF PATENT**

In accordance with section 35 of the Patents Act, it is hereby certified that a patent having the P-No. 107766 [WO 03/102487] has been granted in respect of an invention having the following particulars:

Title : AN IMPROVED CLEANING SYSTEM

Application Number : 200405961-4

Date of Filing : 28 March 2003

Priority Data : 30 May 2002 - PATENT APPLICATION NO.  
200203246-4 (SINGAPORE)



9 September 2002 - PATENT APPLICATION NO.  
200205422-9 (SINGAPORE)

Name of Inventor(s) : SOH, BENG KIAT, PETER

Name(s) and Address(es) of  
Proprietor(s) of Patent : HYDROBALL TECHNICS HOLDINGS PTE LTD  
BLOCK 1 #02-500, ROCHOR ROAD, ROCHOR  
CENTRE,  
SINGAPORE 180001

Date of Grant : 31 October 2006

Dated this 31st day of October 2006.



Liew Woon Yin (Ms)  
Registrar of Patents,  
Singapore.



# The United States of America



## The Director of the United States Patent and Trademark Office

*Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.*

*Therefore, this*

## United States Patent

*Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.*

*If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.*

*If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the U.S. filing date, subject to any statutory extension. If the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121 or 365(c), the term of the patent is twenty years from the date on which the earliest application was filed, subject to any statutory extensions.*

*Jon W. I. Dudas*

Director of the United States Patent and Trademark Office



Europäisches  
Patentamt

European  
Patent Office

Office européen  
des brevets

# Urkunde Certificate Certificat

Es wird hiermit bescheinigt, dass für die in der Patentschrift beschriebene Erfindung ein europäisches Patent für die in der Patentschrift bezeichneten Vertragsstaaten erteilt worden ist.

It is hereby certified that a European patent has been granted in respect of the invention described in the patent specification for the Contracting States designated in the specification.

Il est certifié qu'un brevet européen a été délivré pour l'invention décrite dans le fascicule de brevet, pour les Etats contractants désignés dans le fascicule de brevet.

Europäisches Patent Nr.

European Patent No.

Brevet européen n°

1508017

Patentinhaber

Proprietor of the Patent

Titulaire du brevet

Hydroball Technics Holdings Pte Ltd  
Block 1 Nr.02-500,  
Rochor Road,  
Rochor Centre  
180001 Singapore/SG

München, den  
Munich,  
Fait à Munich, le

09.08.06

Alain Pompidou

Präsident des Europäischen Patentamts  
President of the European Patent Office  
Président de l'Office européen des brevets